2.2.3 Natural Infrastructure

This section describes the existing natural infrastructure within the study area—biotic communities, wildlife, special status species and critical habitat, wildlife linkages, and conservation areas. Information on the existing natural infrastructure was obtained from various sources such as resource databases, Geographic Information Systems (GIS), and local, state, and federal agencies, including the Arizona Game and Fish Department (AGFD) and the U.S. Fish and Wildlife Service (USFWS). The characteristics of the existing natural infrastructure have not been field-verified. Field reconnaissance for on-site verification and documentation is recommended during future project studies.

Biotic Communities

The central and western portion of the study area is shared predominantly between the Lower Colorado River subdivision and the Arizona Upland subdivision of the Sonoran Desert-scrub Biotic Community (Brown, 1994). The eastern portion of the study area is slightly higher in elevation, with the Arizona Upland subdivision of the Sonoran Desertscrub Biotic Community transitioning to the biotic communities of the Semidesert Grassland Series, the Interior Chaparral Series, the Madrean Evergreen Woodland Series, the Great Basin Conifer Woodland Series, and the Petran Montane Conifer Forest Series (Brown, 1994).

The distribution boundaries of biotic communities are ambiguous and often overlap with adjacent communities. Within the study area, the distribution of the Sonoran Desertscrub Biotic Community is predominantly found in the central and western portions of Pinal County. In the Sonoran Desertscrub Biotic Community, the Lower Colorado River subdivision is found at elevations from 70 feet to 2,132 feet above mean sea level (MSL) and the Arizona Upland subdivision is found at elevations from 984 feet to 3,500 feet above MSL. Transitional zones that contain characteristic species for both the Lower Colorado River subdivision and the Arizona Upland subdivision occur at elevations between 984 feet and 2,132 feet above MSL (Brown, 1994). The Semidesert Grassland Biotic Community is found in the eastern portion of Pinal County and the southern portion of Gila County at elevations from 3,500 feet to 5,577 feet (Brown, 1994). The Interior Chaparral Biotic Community is found primarily in Gila County and northern Pinal County, with a few smaller areas in southeast Pinal County. Interior Chaparral is found at elevations from 3,445 feet to 6,070 feet (Brown, 1994). Small areas of the Madrean Evergreen Woodland Biotic Community are found in Gila County and southeastern Pinal County at elevations from 4,921 feet to 5,905 feet (Brown, 1994). The Great Basin Conifer Woodland and the Petran Montane Conifer Forest Biotic Communities are found in southern Gila County at elevations from 4,921 feet to 8,694 feet, (Brown, 1994).

Characteristics of the natural environment were also identified from aerial photographs of the study area (Google Earth, 2007). Biotic communities within the study area are described in more detail in Table 2.2.

Table 2.2 Biotic Communities

Formation	Biotic Community	Brief Description	Percent of Study Area Land
Desertscrub	Sonoran Desertscrub–Lower Colorado River Subdivision	The Lower Colorado River Sonoran Desert Scrub subdivision is the largest and most arid subdivision in Arizona. Species commonly found in this subdivision include: honey mesquite (*Prosopis glandulosa*), ironwood (*Olneya tesota*), blue paloverde (*Cercidium floridum*), desert willow (*Chiopsis linearis*), creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), canyon ragweed (*Ambrosia ambrosioides*), indigo bush (*Psorothamnus schottii*), big galleta (*Hilaria rigida*), catclaw acacia (*Acacia greggii*), burrobrush (*Hymenoclea salsola*), saltbush (*Atriplex polycarpa*), and desert broom (*Baccharis sarothroides*).	26.9%
Desertscrub	Sonoran Desertscrub–Arizona Upland Subdivision	This subdivision is the most watered and least desert-like desertscrub in North America. The vegetation generally appears similar to a scrubland or low woodland of leguminous trees with intervening spaces held by several open layers of shrubs and perennials succulents. Species found within this subdivision include: blue paloverde, ironwood, mesquites (*Prosopis* spp.), catclaw acacia, foothill paloverde (*Cercidium microphyllum*), crucifixion thorn (*Canotia holacantha*), chollas (*Opuntia* spp.), saguaro (*Carnegia gigantean*), organ pipe (*Stenocereus thurberi*), barrel cactus (*Echinocactus horizonthanlonius*), and fish-hook barrel cactus (*Ferocactus wislizenii*).	47.3%
Grassland	Semidesert Grassland Series	This series has naturally high diversity of dry-tropic shrubby species. Common plants found in this series include: black grama (*Bouteloua eriopoda*), slender grama (*Bouteloua filiformis*), chino grama (*Bouteloua breviseta*), spruce top grama (*Bouteloua chondrosioides*), hoe grass (*Muhlenbergia porteri*), several three-awn species (*Artistida* spp.), curly mesquite (*Hilaria belangeri*), slim tridens (*Tridens muticus*), pappus grass (*Pappophorum vaginatum*), and tanglehead grass (*Heteropogon contortus*).	11.5%

Table 2.2 Biotic Communities (cont.)

Formation	Biotic Community	Brief Description	Percent of Study Area Land
Scrub	Interior Chaparral Series	This series intermittently occupies mid-elevations foothills and mountain slopes and is characterized by spring droughts. Common species in this community include various thornscrub species, banana yucca (*Yucca baccata*), agaves (*Agaves* spp.), beargrass (*Nolina microcarpa*), sotol (*Dasylirion whellerie*), snakeweed (*Gutierrezia sarothrae*), false-mesquite (*Callinadra eriophylla*) and Wright's buckwheat (*Eriogonum wrightii*).	11.7%
Woodland	Madrean Evergreen Woodland Series	This series is a transition between the pine and oak forests. Some of the species found in this series include: Emory oak (*Quercus emoryi*), Arizona white oak (*Quercus arizonica*), Mexican blue oak (*Quercus oblongifolia*), gray oak (*Quercus grisea*), Apache pine (*Pinus engelmannii*), Chihuahua pine (*Pinus leiophylla*), Arizona pine (*Pinus ponderosa var. arizonica*), Durango pine (*Pinus durangensis*) alligator juniper (*Juniperus deppeana*) and one-seed juniper (*Juniper monosperma*).	1.6%
Woodland	Great Basin Conifer Woodland Series	This series is characterized by cold-adaptive evergreens. Common species in this series include: Rocky Mountain juniper (*Juniperus scopulorum*), Rocky Mountain pinyon (*Pinus edulis*), singleleaf pinyon (*P. monophylla*), mountain mahoganys (*Cercocarpus* spp.), fourwing saltbush (*Artemisia arbuscula*), black brush (*Coleogyne ramosissima*), prickly pears (*Opuntia* spp.), globe mallows (*Sphaeralcea* spp.), and western wheatgrass (*Agropyron smithii*).	0.6%
Forest	Petran Montane Conifer Forest Series	This series is a wet and cold forest dominated by spruce and fir species. Common vegetation species in this series include: Engelmann spruce (*Picea engelmanni*), blue spruce (*P. pungens*), white fir (*Abies concolor*), Mexican white pine (*Pinus ayacahuite*), quaking aspen (*Populus tremuloides*), New Mexican locust (*Robinia neomexicana*), lupines (*Lupinus* spp.), American vetch (*Vicia americana*), and bluegrasses (*Poa* spp.).	0.4%

Source: Brown, D.E., editor. 1994. *Biotic Communities of the Southwestern United States and Northwestern Mexico*; and GIS Arizona *Vegetation Type* shapefile

Wildlife

In the Central Arizona Regional Framework Study area, the distribution of wildlife and wildlife diversity varies between biotic communities. Wildlife habitat boundaries are sometimes imprecise and can often expand over great distances and various biotic communities. Annual migration routes of some species can also increase the wildlife species diversity within biotic communities during seasonal migrations. Wildlife found within the study area includes a variety of mammals, birds, reptiles, amphibians, and fish. Table 2.3 illustrates wildlife diversity in the study area.

Table 2.3 Biotic Communities Common Wildlife

Biotic Community	Common Wildlife	
Sonoran Desertscrub (Lower Colorado River and Arizona Upland subdivisions)	Mammals	Birds
	Desert mule deer (*Odocoileus hemionus crooki*), feral burros (*Equus asinus*), coyote (*Canis latrans*), javelina (*Dicotyles tajacu*), desert cottontail (*Sylvilagus auduboni*), black-tailed jack rabbit (*Lepus californicus*), ground squirrels (*Ammospermoshilus* spp.), pocket mice (*Perognathus* spp.).	Burrowing owl (*Athene cunicularia*), quail (*Lophortyx* spp.), mourning dove (*Zenaida macroura*), doves (*Zenaida* spp.), road-runner (*Geococcyx californianus*), raven (*Covus cryptoleucus*), cactus wren (*Campylorhynchus brunneicapillus*).
	Reptiles	Amphibians
	Chuckwalla (*Sauromalus obesus*), common lizards (*Uma* spp.), whiptails (*Cnemidophorus* spp.), horned lizards (*Phrynosoma* spp.), rattlesnakes (*Crotalus* spp.)	Couch's spadefoot (*Scaphiopus couchii*), red-spotted toad (*Bufo punctatus*), Sonoran Desert toad (*B. alvarius*), Great Plains toad (*B. cognatus*), American bullfrog (*Rana catesbeiana*).
Semidesert Grassland	Mammals	Birds
	Mule deer, white-tailed deer (*Odocoileus virginianus*), coyote, javelina, black-tailed jack rabbit, spotted ground squirrel (*Spermophilus spilosoma*), hispid pocket mouse (*Perognathus hispidus*), kangaroo rats (*Dipodomys* spp.).	Burrowing owl, quail (*Lophortyx* spp.), mourning dove, road-runner, cactus wren.
	Reptiles	Amphibians
	Desert grass whiptail (*Cnemidophorus uniparens*), Mexican hognose snake (*Heterodon nasicus kennerlyi*).	Western green toad (*Bufo debilis insidior*), red-spotted toad, Sonoran Desert toad, American bullfrog.
Interior Chaparral Series	Mammals	Birds
	Mule deer, white-tailed deer, brush mouse (*Peromyscus boylei*), white-footed mouse (*P. leucopus*), eastern cottontail (*Sylvilagus floridanus holzeri*).	Scrub jay (*Aphelocoma coerulescens*), canyon wren (*Catherpes mexicanus*), brown towhee (*Pipilo fuscus*), black-chinned sparrow (*Spizella atrogularis*).
	Reptiles	Amphibians
	Fence lizards (*Sceloporus* spp.), desert striped whipsnake (*Masticophis taeniatus*), night snake (*Hypsiglena torquata*), lyre snakes (*Trimorphodon* spp.), western rattlesnake (*Crotalus viridis*).	Red-spotted toad, Sonoran Desert toad, Woodhouse's toad (*Bufo woodhousii*), lowland treefrog (*Rana yavapaiensis*), American bullfrog.

Table 2.3 Biotic Communities Common Wildlife (cont.)

Biotic Community	Common Wildlife	
Madrean Evergreen Woodland Series	Mammals	Birds
	Mule deer, eastern cottontail, southern pocket gopher (*Thomomys umbrinus*).	Mexican jay (*Aphelocoma ultramarina*), Montezuma quail (*Crytonyx montezumae*), Mexican chickadee (*Parus sclateri*), western bluebird (*Sialia mexicana*).
	Reptiles	Amphibians
	Bunchgrass lizard (*Sceloporus scalaris*), striped plateau lizard (*S. virgatus*), Mexican garter snake (*Thamnophis eques*), rattlesnakes (*Crotalus* ssp.).	Sonoran Desert toad, lowland treefrog, American bullfrog.
Great Basin Conifer Woodland Series	Mammals	Birds
	Elk (*Cervus elaphus*), mule deer, pinyon deer mouse (*Peromyscus truei*).	Pinyon jay (*Gymnorhinus cyanocephalus*), gray flycatcher (*Empidonax wrightii*).
	Reptiles	Amphibians
	Sagebrush lizard (*Sceloporus graciosus*), plateau striped whiptail (*Cnemidophorus velox*).	Canyon treefrog (*Hyla arenicolor*), lowland treefrog, American bullfrog.
Petran Montane Conifer Forest Series	Mammals	Birds
	Elk, mule deer, white-tailed deer, eastern cottontail, red squirrel (*Tamiasciurus hudsonicus*), chipmunks (*Eutamias* spp.), deer mouse (Peromyscus maniculatus), various bat species.	Western flycatcher (*Empidonax affinis*), spotted owl (*Strix occidentalis*), pygmy owl (*Glaucidium gnoma*), western bluebird, Steller's jay (*Cyanocitta stelleri*), tanagers (*Piranga* spp.).
	Reptiles	Amphibians
	Bunchgrass lizard, striped plateau lizard, short horned lizard (*Phrynosoma douglassi*), gopher snake (*Pituophis meelanoleucus*), rattlesnakes (*Crotalus* ssp.).	Canyon treefrog, American bullfrog.

Source: Brown, D.E., editor. 1994. *Biotic Communities of the Southwestern United States and Northwestern Mexico*.

The diversity of fish species in the study area varies among the major waterways and streams. Common fish species found in major waterways, reservoirs, and canals include largemouth bass (Micropterus salmoides), smallmouth bass (Micropterus dolomieui), black bullhead (Ameiurus melas), yellow bullhead (Ameiurus natalis), channel catfish (Ictalurus punctatus), flathead catfish (Pylodictis olivaris), black crappie (Pomoxis nigromaculatus), red shiner (Cyprinella lutrensis), bluegill (Lepomis macrochirus), threadfin shad (Dorosoma petenense), green sunfish (Lepomis cyanellus), redear sunfish (Lepomis microlophus), fathead minnow (Pimephales promelas), and common carp (Cyprinus carpio) (AGFD, 2007; USBR, 2007).

The majority of the wildlife in the study area will utilize xeroriparian habitat associated with ephemeral washes and intermittent/perennial rivers and creeks. Xeroriparian habitats contain similar plant species as seen in the upland areas however the plants within the xeroriparian areas are larger in size and have a higher density of plants due to the increased availability of water within the drainage or wash area. These areas will also

provide the best habitat value for wildlife, providing food, shelter, and travel corridors. Wildlife, including aquatic wildlife, is attracted toward lands that are pristine and wild (Sonoran Institute et al, 2006). It is these pristine, wild, and roadless lands that provide the healthiest habitats for wildlife and that best sustain wildlife populations. Additionally, roadless lands provide important protection to wildlife and their habitats and offer opportunities for low-impact human recreation activities such as wildlife viewing, trail hiking, hunting, and fishing. Roadways are well-known to have significant impacts on wildlife by altering animal behavior, disrupting and fragmenting habitat, degrading habitat quality, causing road mortality, and introducing and spreading exotic and invasive species. Figure 2-4 depicts the existing and potential roadless areas, indicating the limited amount of pristine, wild, and roadless lands within the study area.

Roadway improvements and new roadways can potentially affect wildlife. Impacts to wildlife include vehicle collisions and potential population or habitat segregation. Coordination should be conducted with applicable government agencies and tribal governments as future projects are designed to address wildlife, habitat, and connectivity concerns.

Special Status Species and Critical Habitats

For purposes of this document, special status species include those that are federally listed as threatened, endangered, proposed, and candidate for listing under the Endangered Species Act of 1973, as amended. Additionally, the special status species identified within this section also include species listed for protection by the AGFD and land management agencies such as the Bureau of Land Management (BLM), and the USFS. A list of federally threatened, endangered, proposed, and candidate species, as well as state-listed wildlife of concern in Arizona that may occur within the study area, was prepared from information provided by the USFWS and AGFD. This list is provided in Table 2.4.

The study area incorporates portions of the Gila River Indian Reservation and the Tohono O'odham Nation. Tribal governments maintain their own lists for species of special concern, which would need to be reviewed and addressed for any future proposed projects on tribal lands.

Protection for the special status species identified in Table 2.4 is regulated by (among others) the Endangered Species Act of 1973, the Migratory Bird Treaty Act of 1918, the Bald Eagle Protection Act of 1940, as amended, and the Arizona Native Plant Law.

Regional Framework Study: Central Arizona

PRELIMINARY DRAFT

Figure 2-4
Natural Infrastructure

MAG Regional Transportation Plan

I-8/I-10 Hidden Valley Framework Study

Eastern Arizona Framework Study

PAG Regional Transportation Plan

Surprise, El Mirage, Youngtown, Peoria, Glendale, Litchfield Park, Goodyear, Avondale, Tolleson, Phoenix, Tempe, Mesa, Scottsdale, Paradise Valley, Fountain Hills, Guadalupe, Gilbert, Chandler, Queen Creek, Apache Junction, Superior, Miami, Globe, Maricopa, Casa Grande, Florence, Coolidge, Eloy, Marana, Kearny, Hayden, Winkelman, Mammoth

Fort McDowell Yavapai Nation; Salt River Pima-Maricopa Indian Community; Gila River Indian Community; Ak-Chin Indian Community; Tohono O'Odham Nation; San Carlos Apache Tribe

Theodore Roosevelt Lake; Salt River; Verde River; Gila River; San Carlos River; Blue River; San Carlos Reservoir

GOLDFIELD MOUNTAINS; SUPERSTITION MOUNTAINS; TORTILLA MOUNTAINS; TORTOLITA MOUNTAINS; SANTA CATALINA MOUNTAINS; GALIURO MOUNTAINS; MESCAL MOUNTAINS; THE TABLELANDS

MARICOPA COUNTY; PINAL COUNTY; GILA COUNTY; GRAHAM COUNTY; PIMA COUNTY

Tonto National Forest; Coronado National Forest

Sierra Estrella Wilderness Area; South Maricopa Mountain Wilderness Area; Tabletop Mountain Wilderness Area; White Canyon Wilderness Area; Needles Eye Wilderness Area; Aravaipa Canyon Wilderness Area

Sonoran Desert National Monument; Ironwood Forest National Monument

Florence National Guard Target Range; Magma Az RR; SM AZ RR; UPRR

Legend
- City/Town
- Interstate
- Highway
- Railroad
- River
- Lake
- County Boundary
- Framework Study Boundary
- Study Area Boundary
- Wilderness Area
- National Monument
- Topography (100' contours)

Natural Infrastructure
- AWC Roadless Character Area*
- Pinal County Open Space Plan
- Sensitive Biological Lands**

NOTE:
While every effort has been made to ensure the accuracy of this information, the study team makes no warranty, expressed or implied, as to its accuracy and expressly disclaims liability for the accuracy thereof.

NOTE:
** Arizona Wildlife Coalition's (AWC) Roadless Character Areas are wildlands and roadless areas protected by AWC on federal lands in Arizona*
*** Sensitive Biological Lands include 1) Priority Grasslands, 2) Priority Conservations Areas; and 3) Arizona Wildlife Linkages*

NORTH

0 3.75 7.5 15
Miles

Sources: ALRIS 2007, ADOT 2007, The Nature Conservancy 2007

May 8, 2008

Table 2.4 Listed Special Status Species -
Known or Potentially Occurring

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Birds						
American peregrine falcon *(Falco peregrinus anatum)*	SC	WSC	S	--	Prefers areas near rocky cliffs and perm-anent water sources.	LOW to MODERATE
Bald eagle *(Haliaeetus leucocephalus)*	T**	WSC	S	--	Found in areas of large trees or cliffs near water with abundant prey.	LOW to MODERATE
Black-bellied whistling duck *(Dendrocygna autumnalis)*	--	WSC	--	--	Prefers low edges of wetlands adjacent to lakes, ponds, rivers, and creeks that have cottonwoods, willows, and velvet mesquite trees.	MODERATE
Cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum)*	SC	WSC	--	--	Prefers well vegetated Sonoran desertscrub near densely wooded dry washes that have large saguaros, palo verde, ironwood, and mesquite trees.	LOW to MODERATE
California brown pelican *(Pelecanus occidentalis californicus)*	PDL	--	--	--	Coastal land and islands; species can be found around Arizona lakes and rivers.	LOW
Common black-hawk *(Buteogallus anthracinus)*	--	WSC	S		Found near riparian areas associated with perennial drainages that offer mature forests of broadleaved deciduous trees.	MODERATE
Golden eagle*** *(Aquila chrysaetos)*	--	--	--	--	Found in open country, prairies, tundra, open coniferous forest and/ or barren areas and uses mountainous or hilly regions for nesting; nests are commonly located on cliff ledges and in trees.	LOW to MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Great egret *(Ardea alba)*	--	WSC	--	--	Prefers lowland riparian areas that provide emergent wetland vegetation with cottonwood, willow, mesquite, and salt cedar growth.	LOW
Least bittern *(Ixobrychus exilis)*	--	WSC	--	--	Prefers large marsh areas that provide dense, tall growth of fringe wetlands.	LOW
Mexican spotted owl *(Strix occidentalis lucida)*	T	WSC	S	--	Found in canyons and dense older forests with multilayered foliage structure of ponderosa pine/ gambel oak or mixed conifer.	MODERATE
Mississippi kite *(Ictinia mississippiensis)*	--	WSC	--	--	Prefers lowland riparian woodlands with cottonwoods.	LOW to MODERATE
Northern gray hawk *(Buteo nitidus maxima)*	SC	WSC	S	--	Prefers riparian woodlands with large cottonwoods, also usually near mesquite forests.	LOW to MODERATE
Osprey *(Pandion haliaetus)*	--	WSC	--	--	Found near shallow water bodies with abundant fish, such as a reservoir, river, lake, salt marsh, mangrove swamp, or cypress swamp.	LOW to MODERATE
South-western willow flycatcher *(Empidonax traillii extimus)*	E	WSC	S	--	Restricted to riparian corridors of rivers and streams with cottonwood/willow and salt cedar vegetation communities.	LOW
Thick-billed kingbird *(Tyrannus crassirostris)*	--	WSC	--	--	Prefers deciduous sycamores/cottonwood riparian woodlands in semi-arid canyons near oak-pine woodlands or mesquite -grasslands.	LOW to MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Tropical kingbird *(Tyrannus melancholicus)*	--	WSC	--	--	Prefers open woodlands located near ponds or flowing streams with cotton-woods. Also found in open to semi-open forested areas in temperate and tropical climates.	LOW to MODERATE
Western burrowing owl *(Athene cunicularia hypugaea)*	SC	--	--	S	Prefers open, well drained grasslands, steppes, deserts, prairies, and agricultural lands. Can also be found in vacant lots, golf courses, and airport open areas.	MODERATE
Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	C	WSC	S	--	Prefers large blocks of riparian woodlands with cottonwood, willow, or salt cedar galleries.	LOW to MODERATE
Yuma clapper rail *(Rallus longirostris yumanensis)*	E	WSC	--	--	Prefers fresh water and brackish marshes with wet substrates, mudflat, sandbars and dense emergent riparian vegetation with dense herbaceous or woody vegetation for nesting and foraging.	LOW to MODERATE
Fish						
Apache (Arizona) trout *(Oncorhynchus apache)*	T	--	--	--	Presently restricted to cold mountain streams with many low gradient meadow reaches.	LOW
Colorado pike-minnow *(Ptychocheilus lucius)*	E	--	--	--	Found in warm, swift, turbid mainstem rivers, preferring eddies and pools.	LOW
Desert pupfish *(Cyprinodon macularius)*	E	WSC	--	--	Found in shallow springs, small streams, and marshes. Able to tolerate warm and saline water.	LOW

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Desert sucker *(Catostomus clarki)*	SC	--	--	S	Found in the Gila River basin within rapids and flowing pools of streams and rivers.	LOW
Gila chub *(Gila intermedia)*	E	--	--		Found in pools, springs, cienegas, and streams.	LOW to MODERATE
Gila longfin dace *(Agosia chrysogaster chrysogaster)*	SC	--	--	S	Found in the Gila River basin from intermittent hot low-desert streams to clear/cool brooks of higher elevations.	LOW
Gila topminnow *(Poeciliopsis occidentalis occidentalis)*	E	WSC	--	--	Found in vegetated shallows of small streams, springs, and cienegas.	LOW
Headwater chub *(Gila nigra)*	C	--	--	--	Found in small to medium-sized streams, often associated with deep pools that have boulder or vegetation cover.	LOW to MODERATE
Loach minnow *(Tiaroga cobitis)*	T	WSC	S	--	Found in benthic regions of small to large perennial streams that have swift shallow water flowing over cobble and gravel.	LOW
Razorback sucker *(Xyrauchen texanus)*	E	--	--	--	Found in riverine, lacustrine, and back-waters areas that lack fast moving water.	LOW
Roundtail chub *(Gila robusta)*	SC	WSC	S	--	Found in cool to warm waters of mid-elevation streams and rivers along with the mainstem and tributaries of the Verde and Salt Rivers.	LOW to MODERATE
Sonora sucker *(Catostomus insignis)*	SC	--	--	S	Found in the Gila River basin within warm water rivers and trout streams.	MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Speckled dace *(Rhinichthys osculus)*	SC	--	--	S	Found in the Gila River basin amidst the bottom of rocky riffles, runs, and pools of head-waters, creeks, and small to medium rivers.	MODERATE to HIGH
Spikedace *(Meda fulgida)*	T	WSC	S	--	Found in moderate to large perennial streams with gravel cobble substrates that offer moderate to swift velocities over sand and gravel substrates.	LOW
Amphibians						
Arizona toad *(Bufo microscaphus)*	SC	--	S	--	Inhabits riparian areas from lowland deserts into uplands Rocky streams and canyons of pine-oak woodlands.	LOW to MODERATE
Chiricahua leopard frog *(Lithobates [Rana] chiricahuensis)*	T	WSC	S	--	Found in and near areas of streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs.	LOW to MODERATE
Great Plains narrow-mouthed toad *(Gastrophryne olivacea)*	--	WSC	--	--	Found in mesquite semi-desert grasslands and oak woodlands that are in close proximity to streams, springs, and rain pools.	MODERATE
Lowland leopard frog *(Rana yavapaiensis)*	SC	WSC	S	--	Found in aquatic systems in desert grasslands and pinyon-juniper associations.	MODERATE
Reptiles						
Arizona night lizard *(Xantusia arizonae)*	--	--	S	--	Prefers arid and semi-arid granite out croppings and rocky areas, and found amongst trunks of agaves, rocks, or under vegetative debris.	LOW

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Giant spotted whiptail *(Aspidoscelis burti sticto-grammus)*	SC	--	S	S	Prefers mountain canyons, arroyos, and mesas in arid and semi-arid regions and enters lowland deserts along stream courses. Found in shrubby vegetation, among rocks or bunch grass near permanent and intermittent streams.	LOW to MODERATE
Narrow-headed gartersnake *(Thamnophis rufipunctatus)*	SC	WSC	S	--	Found in pinyon-juniper and pine-oak woodlands into ponderosa pine forests; near permanently flowing streams with broadleaf deciduous trees.	LOW to MODERATE
Maricopa leaf-nosed snake *(Phyllor-hynchus browni lucidus)*	--	--	S	--	Prefers desertscrub regions and shelters by burrowing into sand and loose soil.	LOW to MODERATE
Red-back whiptail *(Aspidoscelis burti xanthonota)*	SC	--	S	--	Found in the Sonoran upland desert and hill areas of juniper-oak woodlands.	LOW to MODERATE
Sonoran desert tortoise *(Gopherus agassizii-* Sonoran population)	SC	WSC	--	--	Prefers areas of Sonoran desertscrub with rocky slopes and bajadas.	MODERATE to HIGH
Tucson shovel-nosed snake *(Chionactis occipitalis klauberi)*	--	--	--	S	Prefers areas near sandy washes or dunes in desert flats or on gently sloping bajadas of the lower Sonoran Desertscrub.	LOW
Western black kingsnake *(Lampropeltis getula nigrita)*	--	--	S	--	Prefers low elevation desert areas of rock outcrops, and can be found in rodent burrows, under vegetative cover, or under surface cover.	LOW
Invertebrates						
Maricopa tiger beetle *(Cicindela oregona maricopa)*	SC	--	S	S	Found along sandy stream banks with gravels/clays. May occur in seeps or along reservoir banks.	MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Mammals						
Allen's big-eared bat *(Idionycteris phyllotis)*	SC	--	--	S	Prefers the pinyon-juniper, ponderosa pine, Mexican wood-lands and riparian areas of sycamores, cottonwoods and willows. Also found in areas of Mohave desertscrub. Found in near streams or ponds and roosts in caves and mine shafts.	LOW to MODERATE
Arizona myotis *(Myotis occultus)*	SC	--	--	S	Found in ponderosa pine and oak-pine woodland near water or along permanent water or in riparian forest in some desert areas.	LOW to MODERATE
California leaf-nosed bat *(Macrotus californicus)*	SC	WSC	--	--	Prefers the Sonoran desertscrub areas below 4,000 feet that offer caves and tunnel roosting sites.	MODERATE
Cave myotis *(Myotis velifer)*	SC	--	--	S	Prefers desertscrub areas with creosote, brittlebush, palo verde, and cactus species. Roosts in caves, tunnels, mine shafts, and bridges.	MODERATE
Fringed myotis *(Lasiurus blossevillii)*	SC	--	--	S	Found in riparian habitats (willows, cottonwoods, and sycamores) adjacent to streams or open fields, in orchards, and sometimes in urban areas.	LOW to MODERATE
Greater western bonneted bat *(Eumops perotis californicus)*	SC	--	--	--	Prefers the rugged rocky canyons and cliff areas of the lower and upper Sonoran desert-scrubland and roosts within canyon crevices.	MODERATE
Lesser long-nosed bat *(Leptonycteris curasoae yerbabuenae)*	E	WSC	S	--	Prefers the desert scrub habitat with agave and columnar cacti.	LOW to MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Mexican long-tongued bat *(Choeronyc-teris mexicana)*	SC	WSC	--	--	Prefers moderately moist habitats in canyons of mixed oak-conifer forests in mountains rising from the desert; also prefers caves and abandoned mines for roost	MODERATE
Pale Townsend's big-eared bat *(Corynorhinus townsendii pallescens)*	SC	--	--	--	Prefers areas from desertscrub to wood-lands and conifer forests and roosts within caves and mines.	MODERATE
Pocketed free-tailed bat *(Nyctinomops femorosaccus)*	--	--	--	S	Prefers arid lower elevations around high cliffs and rugged rock outcrops.	MODERATE
Western red bat *(Lasiurus blossevillii)*	--	WSC	--	--	Prefers broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cactus associations.	MODERATE
Western small-footed myotis *(Myotis ciliolabrum)*	SC	--	--	S	Prefers deserts, chaparral, riparian zones, and western coniferous forest areas. Day roosts include crevices and cracks in canyon walls, caves, mine tunnels, behind loose tree bark, or in abandoned houses.	MODERATE
Yuma myotis *(Myotis yumanensis)*	SC	--	--	--	A colonial species that prefers cliffs and rocky walls near water and is found in riparian, desertscrub, moist woodlands, and forests.	MODERATE
Plants						
Acuna cactus *(Echinomastus erectocentrus var. acunensis)*	C	HS	--	--	Found in areas with well drained knolls and gravel ridges in Sonoran desertscrub areas.	LOW

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Alamos deer vetch *(Lotus alamosanus)*	--	--	S	--	Found in moist soil near streams in pine-oak forest.	LOW
Aravaipa sage *(Salvia amissa epling.)*	SC	--	S	S	Found in upper floodplain terraces of shady canyon bottoms near streams in under-story of mature sycamore, ash, walnut, and mesquite.	LOW to MODERATE
Aravaipa wood fern *(Thelypteris puberula var. sonorensis)*	--	--	--	S	Found in moderately moist canyons habitats on riverbanks, seepage areas, and meadows within the shade of boulders.	LOW to MODERATE
Arizona alum root *(Heuchera glomerulata)*	--	--	S	--	Found on shaded rocky slopes, in humus soil, near seeps, streams and riparian areas.	LOW
Arizona bugbane *(Cimicifuga arizonica)*	CA	--	--	--	Found in moist, loamy soil between coniferous and riparian ecotones.	LOW to MODERATE
Arizona hedgehog cactus *(Echinocereus triglochidiatus var. arizonicus)*	E	HS	--	S	Found in ecotonal areas between interior chaparral and madrean evergreen woodland vegetation.	LOW to MODERATE
Catalina beard-tongue *(Penstemon discolor)*	--	HS	S	--	Found on bare rock outcrops, barren soil outcrops, and bedrock openings in chaparral or pine-oak woodlands.	LOW to MODERATE
Flannel bush *(Fremontodendron californicum)*	--	SR	--	S	Found on dry, north slopes in canyons, prefers the well-drained rocky hillsides and ridges.	LOW to MODERATE
Gila rock daisy *(Perityle gilensis var. gilensis)*	--	--	S	--	(None noted.) Occurs downstream on the Salt River.	LOW to MODERATE
Golden barrel cactus *(Ferocactus cylindraceus var. eastwoodiae)*	--	SR	--	--	Found in the Mohave and Sonoran deserts on gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins with igneous and limestone substrates.	LOW

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Huachuca water umbel *(Lilaeopsis schaffneriana var. recurva)*	E	HS	--	--	Found within Sonoran desertscrub, grass-lands, oak woodlands, and conifer forests in cienegas or marshy wetlands near seeps, springs and streams in un-shaded or shaded sites of shallow water, saturated soil.	LOW to MODERATE
Mapleleaf false snap-dragon *(Mabrya acerifolia)*	--	--	S	--	Found on rock over-hangs, on shaded cliffs and rock ledges between 1,800 and 3,350 feet.	LOW to MODERATE
Mexican broom-spurge *(Euphorbia gracillima)*	--	--	S	--	Found on altered soils, stream banks, stony desert pavement, and gravelly or rocky slopes, in relatively bare areas with shallow soils.	MODERATE
Mock-pennyroyal *(Hedeoma dentatum)*	--	--	S	--	Found in oak wood-land, oak-pine forest, and pine forest areas and grows on fairly open slopes, along trails, road cuts, steep rocky outcrops, and gravelly slopes in wooded canyons with open to full sunlight.	MODERATE
Mogollon fleabane *(Erigeron anchana)*	SC	--	S	--	Found on granite cliff faces, in rock crevices, ledges, vertical rock faces, or on boulders and is usually within chaparral to pine forests canyons.	LOW to MODERATE
Needle-spined pineapple cactus *(Echinomastus erectocentrus var. erectocentrus)*	SC	SR	S	--	Found in light-colored gravel on gentle slopes, hills, alluvial fans, and disturbed areas in upland desert or semi-desert grassland.	MODERATE

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Nichol Turk's head cactus *(Echinocactus horizonthalonius var. nicholii)*	E	HS	--	--	Found in Sonoran desertscrub area and prefers unshaded microsites on dissected alluvial fans located at the foot of limestone mountains and on inclined terraces or saddles of limestone mountain sides.	LOW to MODERATE
Organ Pipe cactus *(Stenocereus thurberi)*	--	SR	--	--	Found in the Sonoran desert adjacent to thorn forests, located mostly on hills and bajadas.	MODERATE to HIGH
Pima Indian mallow *(Abutilon parishii)*	SC	SR	S	S	Found in moderately moist habitats in full sun and located in the higher elevations of the Sonoran desert-scrub.	LOW to MODERATE
San Carlos wild-buckwheat *(Eriogonum capillare)*	SC	SR	--	--	Found in areas of sparse vegetation and few competing species near disturbed areas, roadsides, road cuts, hill slopes, sandy riverbeds, and sandy/gravelly washes.	MODERATE to HIGH
Stag-horn cholla *(Opuntia versicolor)*	--	SR	--	--	Found in open bajadas and desertscrub areas that provide good soil drainage at elevations from 2,000 to 3,000 feet.	MODERATE
Superb beard-tongue *(Penstemon superbus)*	--	--	S	--	Found in rocky canyons, on dry hillsides, and along gravelly or sandy washes, in pinyon/ juniper and oak woodlands.	LOW to MODERATE
Thornber fishhook cactus *(Mammillaria thornberi)*	--	SR	--	--	Found beneath the overhanging branches of white bursage or next to velvet mesquite trees in sandy soil.	MODERATE to HIGH

Table 2.4 Listed Special Status Species - Known or Potentially Occurring (cont.)

Common Name (Scientific Name)	Status				Habitat Considerations	Potential Occurrence Level*
	US FWS	State	USFS	BLM		
Tonto Basin agave *(Agave delamateri)*	SC	HS	S	--	Found near major drainage systems on open hilly slopes in the upland subdivision of the Sonoran desert.	LOW to MODERATE
Toumey agave *(Agave toumeyana var. bella)*	--	SR	--	--	Found on rocky slopes of the chaparral vegetation com-munities between 4,000 and 5,000 feet.	MODERATE
Tumamoc globeberry *(Tumamoca macdougalii)*	--	SR	S	S	Found in extremely dry areas along gullies and sandy washes of hills and valleys within the Sonoran desert scrub; prefers the shaded of nurse plants.	MODERATE
Varied fishhook cactus *(Mammillaria viridiflora)*	--	SR	--	--	Found in crevices, boulders, canyon sides and gravelly igneous substrates of semi-desert grasslands, interior chaparral, pinyon-juniper and oak woodlands communities.	MODERATE to HIGH

Source: Arizona Game and Fish Department. Heritage Data Management System; and USFWS County Species List – Pinal and Gila County.

* Potential Occurrence Level is based on priority ranking from AGFD, Heritage Data Management System (2008) and is related to the number of occurrences recorded.
* Potential Occurrence of listed species is dependent on the presence of suitable habitat and suitable foraging/nesting resources.
** A recent court order (Center for Biological Diversity and Maricopa Audubon Society vs. USFWS; No. CV 07-0038-PHX-MHM) has reestablished "Threatened" status of the Sonoran Desert bald eagle populations.
*** The golden eagle has been recorded by AGFD as occurring within the study area. This species has no status listing with USFWS, USFS, the State, or BLM; however the golden eagle is protected by the Bald Eagle Act of 1940.

Notes: T= Threatened; PDL= Proposed for Delisting; DL= Delisted
E= Endangered; CH= Designated Critical Habitat
C= Candidate Species; SC= Species of Concern

WSC= Wildlife of Special Concern; HS= Highly Safeguarded; S= Sensitive Plants
SR= Salvage Restricted; SA= Salvage Assessed
ER= Export Restricted; HR= Harvest Restricted

Critical habitat is the specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species, and that have been formally described in the Federal Register. Critical habitat applies only to federally listed endangered or threatened species. Information on critical habitat was obtained from the USFWS Critical Habitat On-line Mapper and AGFD Heritage Data Management System. The southwest willow fly-catcher, Mexican spotted owl, Gila chub, razorback sucker, loach minnow, and spikedace have USFWS designated areas of critical habitat that occur within the study area.

The AGFD online review tool has identified bat colonies recorded as occurring within the study area. Bridges and other massive roadway structures (tunnels, culverts, etc.) can provide suitable habitat and roosting sites for bat species. Existing bridges and other massive roadway structures should be assessed for both actual and potential bat use prior to construction activities. Coordination efforts with AGFD, conducted within the early stages of planning, can identify potential issues with existing bat roosting sites and provide an opportunity to improve them or establish new sites for roosting bat populations.

Potential impacts to listed species and their critical habitat will require consultation under Section 7 of the Endangered Species Act. Depending on the type or amount of potential impacts, project compliance may require formal consultation procedures to be implemented before the USFWS can make a 'no jeopardy' statement.

The Sonoran desert tortoise, an AGFD Wildlife of Special Concern in Arizona, is known to occur within the study area. The AGFD guidelines for handling Sonoran desert tortoises would be followed for any future proposed projects with the potential to impact this species.

Many wildlife and vegetation species have very specific needs that are not always met through the conservation actions of landscapes and often require the restoration and recovery of habitat (AGFD, 2006). Geographically isolated populations with specific habitat requirements are at most risk of extirpation if their habitats are degraded in value or converted to other uses. AGFD is currently developing the Areas of Conservation Priority (ACP) Model, a GIS-based model that can be used for statewide planning efforts. AGFD anticipates the release of the ACP Model in June 2008. ACP will be an essential tool in identifying areas of high species diversity, with the greatest conservation needs, that should be conserved, protected, or avoided entirely. As future plans are developed and site-specific projects identified, coordination with the ACP Model (when available) should be conducted to identify these sensitive areas and (if required) the proper mitigation measures or in-lieu mitigation banking efforts, such as the creation, restoration, or increased protection of species, that can be implemented within the same compatible region to offset any anticipated impacts.

Wildlife Linkages

The Arizona Wildlife Linkages Workgroup, a collaboration of public and private sector organizations, developed a statewide wildlife linkage assessment identifying important habitat connectivity areas, or linkage zones. The Arizona Wildlife Linkages Assessment (2006) was conducted as a proactive effort to preserve and potentially restore habitat connectivity in Arizona. The purpose of the assessment was to identify: habitat blocks that consist of important wildlife habitat; fracture zones that separate habitat blocks; potential linkage zones between, within, and through the habitat blocks and fracture zones that can be identified as areas critical to wildlife movement; and factors threatening to disrupt the potential wildlife linkage zones.

The objective of the assessment is to maintain natural ecosystems, habitat connectivity, and wildlife populations and to address habitat fragmentation through a comprehensive, systematic approach. The Arizona Wildlife Linkages Assessment has identified twelve potential linkage zones within the study area (Figure 2-4). These wildlife linkage zones are:

- Linkage 54, Sierra Ancha – Superstition Mountains;
- Linkage 55, East – West Sierra Ancha SR 288;
- Linkage 56, Sevenmile – Sevenmile East US 60;
- Linkage 66, Superior – Miami US 60;
- Linkage 67, Gila River – El Capitan;
- Linkage 78, State Route 79;
- Linkage 79, Ironwood – Tortolita;
- Linkage 80, Saguaro – Tortolita;
- Linkage 81, Santa Catalina – Tortolita;
- Linkage 82, Santa Catalina – Galliuro;
- Linkage 83, Galliuro – Pinaleno; and
- Linkage 152, Central Arizona Project Canal.

Of the twelve identified potential linkage zones, three--Linkages 56, 66, and 67--are listed as high priorities for consideration because they have both a high ecological value and the most pressing threats to the existing linkage. It is critical to maintain large contiguous blocks of habitat to avoid wildlife population-level effects. By cutting through large tracts of wildlife habitats, transportation corridors destroy them and create fragmentation of wildlife corridors (Arizona Wildlife Linkages Assessment, 2006). Transportation corridors can prevent passage of wildlife or create collision risks to the traveling public from wildlife crossing highways (Arizona Wildlife Linkages Assessment, 2006).

Coordination efforts with AGFD, conducted in the early stages of planning, can identify potential issues with theoretical routes or improvements and assist in developing a well-designed project. The Arizona Wildlife Linkages Assessment Workshop is currently developing several small-scale linkage assessments for the state and is obtaining additional information to accurately identify crucial habitats and corridors necessary in Arizona. Coordination with AGFD on the twelve existing wildlife linkages and their value for connectivity, along with consideration for the developing small-scale linkages (when available from the Arizona Wildlife Linkages Assessment Workshop), should be conducted as designs for corridors or site-specific plans are developed. Coordination with AGFD Wildlife Management Research and regional representatives should be conducted before improvements to existing facilities, to allow AGFD recommendations for adequate wildlife crossing structures at the appropriate places. Further studies and surveys for wildlife may be required as design plans are developed to assess the potential impacts to wildlife, habitats, and linkages.

Conservation Areas

Conservation areas are identified as tracts of land that have received a protected status that safeguards natural features, biological resources such as species and habitat, and the cultural heritage. Conservation areas include state and national parks, wilderness areas, designated forests, wildlife refuges, national monuments, land reclamation areas, historic districts, and areas that have an architectural or historic special interest. Within the study area 25 conservation areas have been identified: Aravaipa Canyon Wilderness Area, Needles Eye Wilderness Area, Superstition Mountain Wilderness Area, Tabletop Mountain Wilderness Area, White Canyon Wilderness Area, Coronado National Forest, Tonto National Forest, Casa Grande Ruins National Monument, Ironwood Forest National Monument, Sonoran Desert National Monument, Tortolita Mountain Park, Boyce Thompson Arboretum State Park, Lost Dutchman State Park, McFarland State Park, Picacho Peak State Park, Oracle State Park, and nine historic districts. Identified conservation areas are described below and mapped in Figure 2-4. Historical conservation areas detailed in this study are limited to identified historic districts. Further study and determination of individual historical and architectural special interest areas should be conducted as site-specific plans and designs are developed.

Aravaipa Canyon Wilderness Area: The Aravaipa Canyon Wilderness Area, managed by the BLM, is located along the eastern border of Pinal County approximately 120 miles southeast of Phoenix. The area covers 19,410 acres and includes 11-mile-long Aravaipa Canyon, nine side canyons and the surrounding tablelands (elevated flat regions). The Aravaipa Canyon Preserve is protected by The Nature Conservancy and comprises an additional 7,000 acres of adjacent land on both the east and west sides of the canyon (Nature Conservancy, 2008). The Aravaipa Canyon Wilderness Area is noted for its majestic cliffs and mountains, waterways, mixed broadleaf riparian forests, and bighorn sheep population. Elevations in the area range from 2,800 feet to 6,150 feet.

Needles Eye Wilderness Area: The BLM-managed Needles Eye Wilderness Area is located on the border of Gila and Pinal counties just west of the San Carlos Reservoir. The area covers 8,760 acres and includes portions of the Mescal Mountains which run northwest through the center of the area. Needles Eye Wilderness Area is noted for three 1,000-foot-deep canyons, known as the Needle's Eye, which are formed by the Gila River. Elevations range from approximately 2,100 feet to 4,200 feet.

Tabletop Mountain Wilderness Area: The BLM-managed Tabletop Mountain Wilderness Area is located along the western border of Pinal County approximately 45 miles south of Phoenix. The area covers approximately 34,400 acres and is noted for the characteristic flat-topped desert grassland summit of Tabletop Mountain, approximately 4,370 feet high, along with the steeply rising flat-top mesas, lava flows, broad canyons, mesquite- and ironwood-riparian forests, wildlife, and a population of bighorn sheep. Elevations range from 1,800 feet to 4,350 feet.

Superstition Wilderness Area: The Superstition Wilderness Area is located east of Phoenix in Maricopa, Pinal, and Gila Counties and is managed by the US Forest Service. The wilderness covers approximately 160,200 acres and is located within the Tonto National Forest (USFS, 2006). The Superstition Wilderness Area is noted for its network of approximately 170 miles of trails and its unfound lost gold mines (USFS, 2006). Elevations range from approximately 1,800 feet to 5,400 feet.

White Canyon Wilderness Area: The White Canyon Wilderness Area is located south of Superior in Pinal County and is managed by the BLM. The wilderness covers approximately

5,800 acres and includes the southeastern portion of the Mineral Mountains (BLM, 2007). The White Canyon Wilderness Area is noted for its two major topographical features, White Canyon and the Rincon. The Rincon is a large escarpment that towers over the valley floor and offers scenic valley views. Elevations range from approximately 2,200 feet to 3,230 feet.

Coronado National Forest: The Coronado National Forest is located in Pinal, Pima, Graham, and Cochise counties and covers approximately 1.78 million acres in southeast Arizona and southwest New Mexico (USFS, 2005). The Coronado National Forest is noted for twelve mountain ranges that provide sky island habitats, and the variety of ecosystems and biodiversity, from desert landscapes to forested mountains. Elevations range from 3,000 feet to 10,700 feet.

Tonto National Forest: The Tonto National Forest is (partially) located in the northern portion of the study area and is the fifth largest national forest in the United States, with approximately 3 million acres and eight wilderness areas (USFS, 2008). Noted for its rugged and beautiful landscapes, the Tonto National Forest provides a variety of ecosystems and biodiversity, from saguaro cactus desert to pine forested mountains. Its features include the Mongollon Rim, lakes and waterways, rocky canyons, and flat grassland plains. Elevations range from 1,300 feet to 7,900 feet.

Casa Grande Ruins National Monument: The Casa Grande Ruins National Monument is located in Coolidge, Arizona approximately 55 miles southeast of Phoenix, Arizona. The site preserves an ancient Hohokam farming community and Great House and was the first designated archeological reserve in 1892 (NPS, 2008).

Ironwood Forest National Monument: The Ironwood Forest National Monument covers approximately 129,000 acres in Pinal and Pima Counties, northwest of Tucson (BLM, 2008). A showcase for the Sonoran Desert, the monument is blanketed with ironwood trees, mesquites, palo verde, and saguaro cacti, and exhibits the Silver Bell, Waterman, and Sawtooth Mountains. Three areas within the monument are listed on the National Register of Historic Places: the Los Robles Archeological District, the Mission of Santa Ana del Chiquiburitac, and the Cocoraque Butte Archeological District. Elevations range from 1,800 feet to over 4,200 feet.

Sonoran Desert National Monument: The Sonoran Desert National Monument is located in Pinal and Maricopa Counties along the I-8 corridor, and covers approximately 487,000 acres of Sonoran Desert landscapes (BLM, 2008). The monument is noted for its biologically diverse desert with three wilderness areas: the North Maricopa Mountains Wilderness, the South Maricopa Mountains Wilderness, and the Table Top Wilderness. It also has a section of the Juan Bautista de Anza National Historic Trail. Elevations range from 500 feet to 4,373 feet.

Tortolita Mountain Park: The Tortolita Mountain Park is located north of Tucson in Pinal and Pima Counties and is managed by the Arizona Open Land Trust. The mountain park covers approximately 3,445 acres (AOLT, 2008). The Tortolita Mountain Park is noted for its Hohokam cultural resources and species diversity.

State Parks: Five state parks have been identified within the Central Framework Study Area: Boyce Thompson Arboretum State Park west of Superior; Lost Dutchman State Park northeast of Apache Junction; Picacho Peak State Park southeast of Eloy off I-10; McFarland State Historical Park in Florence; and Oracle State Park in Oracle.

Historic Districts: Historic districts in Pinal County have been identified in Coolidge, Randolph, Florence, Picacho, Red Rock, Oracle, and Superior. These districts are shown in Figure 2-5. These historic districts include the Casa Grande Ruins National Monument in Coolidge; the Verdugo Homestead Historic District in Randolph; the Florence Townsite Historic District; the McClellan Wash Archeological District in Picacho; the Los Robles Archeological District in Red Rock; the Rancho Linda Vista in Oracle; and the Boyce Thompson Arboretum west of Superior. Two historic districts in Gila County have been identified in Globe: the Globe Commercial and Civic Historic District and Globe Downtown Historic District.

2.2.4 Cultural Resources

Cultural resources include archaeological and historical resources. The criteria for inclusion in the Arizona Register of Historic Places (ARHP) and/or the National Register of Historic Places (NRHP) are used to evaluate the significance of such resources. Inclusion criteria for the ARHP are identical to the NRHP inclusion criteria (NRHP, Title 36 Code of Federal Regulations, Part 60 [36 CFR 60]). To be eligible for the ARHP or NRHP, cultural resources must be at least 50 years old (age requirement not applicable for properties with exceptional significance value as defined in 36 CFR 60.4), and display significance at the local, state, or national level, by fulfilling one or more of the following criteria:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) have yielded, or may be likely to yield, information important to prehistory or history.

Future proposed projects are required to comply with local, state, and federal historic preservation laws and regulations. The local, state, and federal regulations are summarized below.

Local Regulations

The study area encompasses numerous municipalities, portions of Gila and Pinal Counties, and portions of the Gila River Indian Community and Tohono O'odham Nation. These entities may have their own historic preservation policies, procedures and regulatory requirements (e.g., historic preservation ordinances or zoning stipulations). These requirements may also be updated or revised from time to time. As future projects are developed within these areas, all local regulations regarding archaeological, historic and other cultural resources must be identified and adhered to.